What is Claimed is:

1. An acoustic blood analyzer (ABA) comprising a transducer section of one or more acoustic sensors.

2. The acoustic blood analyzer of claim 1 wherein the one or more acoustic sensors comprise piezoelectric, electrostrictive, magnetostrictive, acoustooptic or thermo(piro)acoustic sensors or a combination thereof.

3. The acoustic blood analyzer of claim 1 wherein the transducer section comprises an array of acoustic sensors.

4. The acoustic blood analyzer of claim 1 wherein the acoustic sensors further comprise a bioactive surface or coating which promotes specific blood-sensor interactions.

5. The acoustic blood analyzer of claim 1 wherein the acoustic sensor further comprises a bioactive surface or coating which promotes specific interactions of intrinsic blood components or extrinsic blood components.

6. The acoustic blood analyzer of claim 5 further comprising:

(a) a fluidic section to deliver and distribute a blood sample to the acoustic sensors of the transducer section;

(b) an electronic section means which excites the acoustic sensors and detects changes in the operational parameters of the transducer section;

(c) a packaging section or housing which provides mechanical, electrical, thermal and functional integrity to the transducer, fluidic and electronic sections; and

(d) a blood sampling means.

7. The acoustic blood analyzer of claim 6 wherein the electronic section means can excite the one or more acoustic sensors of the transducer section over a frequency range of a single KHz to several GHz at discrete frequencies or simultaneously at all frequencies.

8. The acoustic blood analyzer of claim 7 wherein electronic section means can excite the one or more acoustic sensors of the transducer section at discrete frequencies comprising resonant, antiresonant, harmonic and anharmonic frequencies of the first and higher orders.

9. The acoustic blood analyzer of claim 7 wherein the one or more acoustic sensors excited over broad frequency range from single KHz to several GHz interrogates a blood sample over a range of distances from nanometers to centimeters from a surface of the acoustic sensor.

10. A device for measuring blood properties in the body of a subject comprising the acoustic blood analyzer of claim 1 integrated into a catheter to be inserted in the body of the subject.

11. A method for measuring blood properties in a blood sample of a subject comprising analyzing the blood sample with the acoustic blood analyzer of claim 1.

12. The method of claim 11 wherein the acoustic blood analyzer comprises a first and second acoustic sensor and the analysis of the blood sample is performed by the first sensor and compared to analysis of a reference fluid by the second acoustic sensor.

13. The method of claim 11 wherein blood properties are measured by correlating an electrical property of the acoustic sensor utilizing a mathematical solution to the coupled Newton, Maxwell and blood constitutive equations.

14. The method of claim 11 wherein the acoustic blood analyzer is used to measure specific coagulation cascades steps, activation of plasma factors VII, IX, XI, VIII, V, X, and II (thrombin) or platelet function.

15. A method for identifying, diagnosing and monitoring subjects at high risk for blood clots and excessive bleeding comprising (i) obtaining a blood sample from a subject; and (ii) analyzing the blood sample in the acoustic blood analyzer of claim 1.

16. A method of using different vibrational modes of an acoustic sensor selected from shear, torsional, and compressional vibrational modes and combinations thereof to characterization blood properties of a blood sample.